

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A production method of a mammalian artificial chromosome, comprising:

a first step of introducing into a mammalian host cell a first vector and a second vector so that recombination between the first and second vectors is carried out, wherein the first vector is in circular form and comprises a mammalian centromere sequence comprising a 11-mer repeat unit obtained from a human chromosome 21, and wherein the second vector is in circular form and comprises an insulator sequence selected from the group consisting of human beta-globin HS1 to 5, chicken beta globin HS4, Drosophila gypsy retrotransposon, sea urchin 5' flanking region of arylsulfatase, blocking element α/δ of human T cell receptor α/δ , and repeat organizer of Xenopus 40S ribosomal RNA gene, wherein the second vector comprises an insertion sequence selected from the group consisting of a loxP site, a FRT site, and a sequence obtained by partial modification of a loxP site or a FRT site and has a function for inserting the sequence of interest, and wherein the first vector or the second vector comprises a selection marker, and wherein the size of the mammalian centromere sequence is about 50 kb or less;

a second step of selecting transformed cells, wherein the selection of the transformed cells is carried out by using the selection marker gene of the first vector or the second vector; and

a third step of selecting a cell containing a mammalian artificial chromosome, having at least two copies of the first vector or at least two copies of the second vector or at least two copies of both, from the selected transformed cells, thereby producing a mammalian artificial chromosome.

2 - 3. Canceled.

4. (Previously Presented) The production method according to claim 1, wherein the mammalian centromere sequence comprises a region in which a plurality of the following sequences are arranged at regular intervals: 5'-NTTCGNNNNANNCGGGN-3': SEQ ID NO. 1, wherein N is selected from the group consisting of A, T, C and G.

5 - 13. Cancelled.

14. (Previously Presented) The production method according to claim 1, wherein the quantity ratio of the first vector to the second vector, which are inserted in the first step, is in the range from about 10:1 molecular ratio to about 1:10 molecular ratio.

15 - 56. Canceled.

57. (Previously Presented) The production method according to claim 1, wherein the mammalian centromere sequence comprises a region in which a plurality of the following sequences are arranged at regular intervals: 5'-NTTCGTTGGAAACGGGA-3': SEQ ID NO: 2, wherein N is selected from the group consisting of A, T, C and G.

58. (Previously Presented) The production method according to claim 1, wherein the mammalian centromere sequence comprises a sequence of SEQ ID NO: 1.